LaTeX Homework Assignment
Due 03/12/2021

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March 12, 2021

Typeset the following lines (i.e. create an exact copy of this document using LaTeX).

1 First group of exercises

1. $v = (v_1, v_2, v_3)^t$
2. $f_n(x) = x^n + a_{n-1}x^{n-1} + \cdots + a_1 x + a_0$
3. $g(x) = \int_0^\infty G(t, x)dt$
4. $\sum_{i=1}^{\infty} x^i$
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6. We say that λ is an eigenvalue of a matrix A corresponding to eigenvector u if $Au = \lambda u$. For example,

$$\begin{bmatrix} -1 & \frac{1}{3} \\ 0 & 2 \end{bmatrix} \begin{bmatrix} 1 \\ 0 \end{bmatrix} = (-1) \begin{bmatrix} 1 \\ 0 \end{bmatrix},$$

so -1 is an eigenvector of the matrix on the left corresponding to the eigenvector $(1, 0)^T$.

Fruit Prices	
apples	\$.50
peaches	\$1.25

2 Second group of exercises

Here are some more nice exercises for LaTeX. Try a piecewise defined function:

$$f(x) = \begin{cases} x^2 & x > 0 \\ 0 & \text{otherwise} \end{cases}$$

Here is an example using Greek letters.

$$\Lambda_N = \sum_{n=0}^{N} \frac{1}{\lambda^n}$$

For the following,

$$\sum_{i=1}^{2^N-1} \frac{1}{i} = 1 + \frac{1}{2} + \cdots + \frac{1}{2^N - 1} \tag{1}$$

$$> \frac{1}{2} + \frac{1}{4} + \frac{1}{4} + \overbrace{\frac{1}{8} + \cdots + \frac{1}{8}}^{4 \text{ times}} + \cdots + \frac{1}{2^N}, \quad \text{for } N > 3 \tag{2}$$

Note lines (1) and (2). You must use `\label{}` and `\eqref{}` to make references to equations (1) and (2).